

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,589	03/30/2001	Basil Lui	108572	5262

25944 7590 09/24/2004

OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER

GARCIA OTERO, EDUARDO

ART UNIT PAPER NUMBER

2123

DATE MAILED: 09/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

2

**Office Action Summary**

Application No.

09/762,589

Applicant(s)

LUI, BASIL

Examiner

Eduardo Garcia-Otero

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 February 2001, and 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, and 5-7 is/are rejected.
- 7) ☒ Claim(s) 4 and 8-12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/29/2001.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION: Non-Final (first action on the merits)**

***Introduction***

1. Title is: SEMICONDUCTOR DEVICE SIMULATION METHOD AND SIMULATOR.
2. First named inventor is: LUI.
3. Claims 1-12 have been submitted, examined, and objected or rejected.
4. Priority is claimed to foreign application United Kingdom 9913915.6 filed 6/15/1999.

***Index of Prior Art***

5. Tsukada refers to US Patent 5,266,825.
6. Batra refers to US Patent 6,066,517.
7. Dilger refers to US Patent 5,989,947.

***35 USC § 101-statutory subject matter-In re Sarker***

8. 35 U.S.C. 101 reads as follows: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
9. **Claims 1-3 and 5-7 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter. Specifically, the claims are directed towards manipulation of an abstract idea, without producing “useful, concrete, and tangible” results as required by *In re Alappat*, 33 F.3d 1524, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994).
10. Additionally, note *In re Sarker*, 200 USPQ 132, (CCPA), Dec. 7 1978 at page 137 discusses the significance of “post-solution activity” like building a bridge or a dam, and states “While it is true that the final step in each of these claims makes reference to the mathematical result achieved by performing the prior recited steps, we consider the connection to be so tenuous that the several steps recited in each claim when considered as a whole do not constitute a proper method under the statute”.
11. Specifically, in claim 1 “determining enhanced generation recombination rate” is not a “useful, concrete, and tangible” result. A clear “post-solution activity” is required, per *In re Sarker*.
12. Claims 2-3, and 5-7 are rejected for the same reason as claim 1.
13. Note that claims 4, 8, 9, and 10-12 all have the limitation “determines the leakage current in a polysilicon Thin Film Transistor”. Said limitation is a clear and adequate “post-solution

Art Unit: 2123

activity”, and thus is “useful, concrete, and tangible”. Thus, claims 4, 8, 9, and 10-12 satisfy the 35 USC 101 statutory requirements.

### ***Claim Interpretation***

14. The claim language is interpreted in light of the specification. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
15. Claims 4, 9, and 10 all state “A simulator as claimed in”, which are “apparatus” or “machine” type claims according to the statutory categories of 35 USC 101. However, the parent claims are all “method” claims.
16. In view of the specification and all the other claims, it is clear that the Applicant intended claims 4, 9, and 10 to read “An automated simulation method as claimed in”. Thus, the Examiner interprets claims 4, 9, and 10 as referring to the method of the parent claims. Please amend appropriately.
17. Note that any other interpretation would lead to rejections under 35 USC 101 for improperly claiming both an apparatus and a method. See MPEP 2173.05(p)(II), which states:

A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. In *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. 112, second paragraph.

Such claims should also be rejected under 35 U.S.C. 101 based on the theory that the claim is directed to neither a “process” nor a “machine,” but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551.
18. Also see MPEP 2106 regarding computer related inventions.

### ***Objections***

19. Claims 4, and 8-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
20. Note that claims 4, and 8-12 all have the limitation “determines the leakage current in a polysilicon Thin Film Transistor”. Said limitation is a clear and adequate “post-solution

Art Unit: 2123

activity”, and thus is “useful, concrete, and tangible”. Thus, claims 4, 8, 9, and 10-12 satisfy the 35 USC 101 statutory requirements.

***Allowable Subject Matter***

21. At present, the claims appear to contain potentially allowable subject matter. None of the prior art of record renders the claimed invention non-obvious.
22. Note the clear and very detailed logical steps of claim 1 and claim 5, and note the use of detailed equations in all other claims. Said detailed logical steps and said detailed equations are not disclosed by the prior art of record.
23. Thus, the present application appears to contain substantial amounts of potentially allowable allowable subject matter.
24. Note that claims 4, and 8-12 are merely objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
25. However, claims 4, 9, and 10 have been rejected under 35 USC 101.

***Additional Cited Prior Art***

26. The following US patents or publications are hereby cited as prior art, but have not been used for rejection. Applicant should review these carefully before responding to this office action.
27. Tsukada refers to US Patent 5,266,825, and discloses “**Poole-Frenkel**” at column 6 line 66.
28. Batra refers to US Patent 6,066,517, and discloses “**Poole-Frenkel**” at column 2 line 3.
29. Dilger refers to US Patent 5,989,947, and discloses “**Dirac... tunnel**” at column 12 lines 35-49.
30. However, none of the art of record renders the claimed invention non-obvious. Note the clear and very detailed logical steps of claim 1 and claim 5, and note the use of detailed equations in all other claims.

***Conclusion***

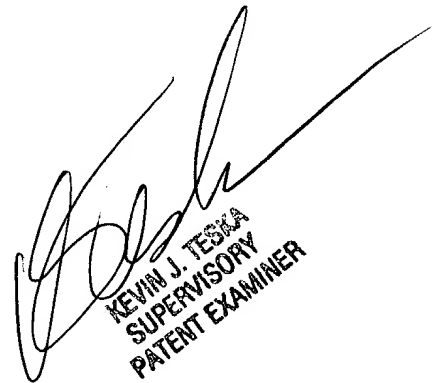
31. Claims 1-3, and 5-7 are rejected under 35 USC 101.
32. Claims 4, and 8-12 are objected to, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
33. Note that none of the claims are rejected against prior art.

Art Unit: 2123

***Communication***

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Garcia-Otero whose telephone number is 703-305-0857. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 8:00 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska, can be reached at (703) 305-9704. The fax phone number for this group is 703-872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (703) 305-3900.

\* \* \* \*



KEVIN J. TESKA  
SUPERVISORY  
PATENT EXAMINER